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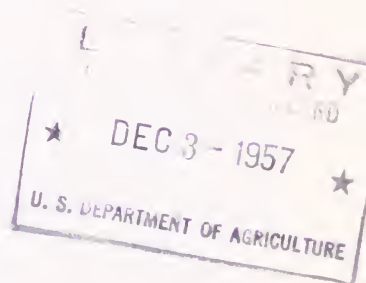


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Marketing Research Report No. 168



# Hundredweight or Bushel... AS A TRADING UNIT FOR GRAIN

Agricultural Marketing Service  
Marketing Research Division  
U.S. DEPARTMENT OF AGRICULTURE

## SUMMARY

A study of the probable effects of a shift from the bushel to the hundredweight measure in the grain industry indicated that the advantages would vary in degree, depending upon the group concerned. The advantages, however, would be permanent. Disadvantages would be more numerous but not insurmountable, continuing only during the transitional period.

Principal advantages were found to be: (1) Conversion of quantities of grain from bushels to pounds and vice versa, now necessary in many cases, would be largely eliminated, with a probable saving in time and work and the possibility of a reduction of errors in such computations; (2) comparisons by farmers and traders of prices and relative feeding values of grains would be facilitated by keeping the different grains on an equal weight basis (per 100 pounds) rather than on the basis of bushels that vary widely in weight.

Disadvantages included: (1) The required adjustment in habits of thinking in the grain trade, from the bushel unit to the hundredweight; (2) changes in legislation that would be necessary; (3) changes in forms and office procedures; (4) revisions of historical data; (5) changes in trading practices.

There was general agreement among the groups interviewed in this study that the disadvantages of the change, although they involve some statistical work, would prevail only during the transitional period and generally would disappear after the period of adjustment to the hundredweight unit. The problem of adjusting the thinking of those in the grain trade to the new basis was regarded as the most important one; but that difficulty would be offset, at least in several segments of the trade, by the simplicity of making comparisons on a uniform basis.

Although there was no general agreement on the best time of year for the change to take effect, most groups contacted suggested that, if the shift in the trading unit were made, "wintertime" or January 1 would be the preferred time. It was generally agreed that the intention to make the shift should be announced at least one year before its effective date. Some groups indicated, however, that considerably more than a year might be needed to make some of the necessary preparations for the shift, particularly for the revision of legislation.

The study was made through interviews with representatives of farmers, farm organizations, the grain trade, banks, insurance companies, and other interested agencies and groups. This report presents their views on the merits and problems of the proposed change.

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# HUNDREDWEIGHT OR BUSHEL AS A TRADING UNIT FOR GRAIN

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## INTRODUCTION

For years, the grain trade has considered changing the trading unit from a bushel to a hundredweight.

Several trade groups and a few State and Federal agencies have studied segments of the problem.

Two of the national farm organizations have adopted resolutions favoring the shift. And in February 1956, two advisory committees of the U. S. Department of Agriculture recommended a study. The Grain Research and Marketing Advisory Committee recommended "that a study be initiated at an early date to evaluate the merits of the problems involved in shifting trade in grain from bushels to 100-pound units. The analysis should include a study of the legal obstacles, institutional changes, and statistical data adjustments required in event such a change were initiated." The Feed and Forage Research and Marketing Advisory Committee made a nearly identical recommendation.

Rice, grain sorghums, dry beans, dry peas, and many seed crops are now traded on a hundredweight basis, and in several Western States all grains are traded in hundredweights.

This report summarizes the information received from the grain trade and from Government agencies which might be affected by the proposed change. The major emphasis was placed on the determination of the nature of the problems and the extent of the changes confronting each group concerned, and not upon the number of individuals involved. A representative portion of each segment of the grain trade was contacted.

Information was obtained through interviews with representatives of farm organizations and grain trade associations, and from country and terminal elevator operators, banking institutions, insurance brokers, and members and officers of futures exchanges. 1/ Government agencies provided information through group discussions and informal questionnaires on the nature of the problems and changes that would confront them as a result of the shift. Several of the grain trade associations polled their members for information on the effect of the proposed shift.

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1/ Information was supplied concerning the probable changes and problems by 3 farm organizations, 3 grain exchanges, 5 financial institutions, approximately 400 elevator operators, 300 feed and flour mills, 100 brokers and jobbers, 100 commission men, and 50 grain processors, 40 State Departments of Agriculture, and all affected agencies of the U. S. Department of Agriculture. These responses were obtained from a combination of personal interviews, replies to letter inquiries, and trade association surveys.



## ATTITUDES OF FARM ORGANIZATIONS

Views were obtained from representatives of the National Grange, the American Farm Bureau Federation, the National Farmers' Union, and State and regional farmers' cooperative associations.

The National Grange, at its annual session in November 1956, adopted this resolution: "As the standard of measurement in both purchases and sales, we favor the use of the hundredweight or ton measurement, instead of the bushel, for all grains, feeds, and seeds, and instead of the bale of hay." This reaffirmed a 1955 policy statement.

The American Farm Bureau Federation, at its national convention in December 1955, adopted a resolution that "We favor adoption of the 'hundredweight' as a uniform standard of measurement for grain." This resolution was reaffirmed at the December 1956 annual meeting.

The Secretary of the National Council of Farmer Cooperatives expressed his organization's attitude in a letter in September 1955, as follows: "At this time the National Council of Farmer Cooperatives joins in a recommendation for such a study in the near future in order that its members interested in the grain and feed trade may have before them the information necessary to give adequate consideration to the question."

The National Farmers Union favors the change.

The proposed shift would be expected to lessen the possibility of errors through elimination of the many conversions needed at present. It also would facilitate comparisons between the feeding values and the prices of various grains. For example, farmers must now compare the feeding value of oats at, say, 70 cents a bushel, with corn at \$1.30 a bushel; while on a hundredweight basis, the comparison would be \$2.19 for oats with \$2.30 for corn.

Representatives of the farm groups felt that no great length of time would be required by farmers to prepare for the shift, but most of them indicated that "winter" would be the preferred time. Many lease arrangements specify bushels and, if the shift were instituted in winter, new leases could incorporate the new trading unit.

According to those interviewed, the only major disadvantage that would be expected to relate directly to farmers would be the changes in patterns



of thought that would be necessary. Farmers' experiences generally are based on the bushel unit, and the change would necessitate their adjustment to an unfamiliar basis of reckoning.

#### VIEWS OF ELEVATOR OPERATORS

Farmers generally deliver grain to the country elevators in truck lots, and the gross weight of the grain is determined immediately upon receipt. Dockage is determined and subtracted to give the net weight of the load. These figures in pounds are entered in the records of the firm, on the scale ticket, and, if the grain is to be stored, on the receipt to be submitted to the farmer. Then the net weight and, frequently, gross weight and dockage figures in pounds must be converted to bushel equivalents and the bushel figures entered in the records of the firm, and also on the scale ticket and warehouse receipt.

If the local elevator cleans grain or performs other services, conversions again are necessary. When an elevator operator makes a local sale of grain, he must first convert the order from bushels to pounds in order to know how much grain he must weigh out in pounds. When the grain is shipped to terminal markets, the local operator fills out a bill of lading in pounds and, if part of a "line operation" (that is, a deal by a local elevator that is part of a chain) a shipping report to submit to the home office. The scale ticket generally given to the shipper is recorded in both pounds and bushels; a warehouse receipt issued to the shipper is in bushels, and a warehouseman's supplemental certificate for loan grain is in bushels. When grain reaches the terminal market, many of the same conversions again are necessary.

If the trading unit were shifted, elevator operators would need to prepare new tariff sheets showing charges. In some States, such as Minnesota, the Dakotas, and Montana, legislation might need amending to permit changing the tariff sheets. It was suggested by some of those interviewed that in such instances it might be possible simply to convert existing charges per bushel into hundredweight equivalents, and that no change in legislation would be necessary. However, this point has not been definitely established in any State, and it might be interpreted differently in different States.

All scale tickets, warehouse receipts, warehouseman's supplemental certificates, and other forms and instructions would need a change in format. Also, all inventory records, historical series of data, and outstanding receipts maintained would need conversion for the elevator or parent office or firm.

Revisions of State legislation probably would be required in order to permit the necessary changes in the warehouse receipts in some States where the form in which these receipts are to be made up and the information to be reported thereon are specified by law.

Elevator operators said that establishing new rates in line with the present charges for services performed would pose the greatest problem for them in making the shift. The service charges per bushel are now about the same for all grains. However, if a hundredweight were established as a basic unit and warehousemen were to get the same returns from an elevator regardless of the type of grain stored, rates per hundredweight would have to vary among grains. Producers were expected to resist what may appear to be higher charges on some grains. In some States, establishment of a new schedule of charges probably would require changes in legislation, and in other States approval of new tariff sheets by the regulatory agencies would be needed. The problem of amending legislation in those States where revision would be necessary is complicated by the fact that in many States the legislature meets only every 2 years.

Minor changes would be necessary in tickets, receipts, and other forms now in use, although these changes could be kept to a minimum by substituting hundredweight for bushel, wherever possible, on the blanks.

Conversion of all statistical series would present no major problem, although some retraining of clerical personnel would be necessary until they became accustomed to the new procedures.

People active in the grain trade have established over the years a series of relationships of prices, production, volume handled, and other factors which have all been in terms of bushels. A change in the trading unit would necessitate establishing new relationships and incorporating these relationships as a part of everyday thinking.

Another disadvantage mentioned by elevator men would be the cost in time and money for making preparations for the shift. However, the cost for retraining clerical help would not be large, and additional expenses could be held to a minimum by continuing to use, to the fullest extent possible, all forms and notices now in use.

One advantage would be the elimination of numerous conversion calculations, from pounds to bushels and from bushels to pounds, which are involved as the grain moves forward from the farm to the final market.

A second advantage would be simplification of calculations, by having all grains on a uniform trading basis. The new system might facilitate shifting the office procedure from manual to machine operations and also reduce the possibility of error.

## EFFECTS EXPECTED BY OTHER GRAIN HANDLERS

Other grain handlers include commission men, brokers, and jobbers who buy or sell on the spot-cash or futures markets. The extent to which the operations of these agencies would be affected by the proposed change would depend upon the dominant activities of the agency involved.

Immediately, conversion of statistical series generally would be necessary covering a period of at least a year, and eventually a complete recalculation of records from bushels to hundredweight might be necessary.

All commissions and handling charges would have to be converted from a bushel to a hundredweight basis. This might produce a problem in relations between the merchandising agency and the grain shipper, according to some grain handlers, because the rates per bushel charged currently are approximately the same for all grain, whereas, if the shift were instituted and comparable returns for handling different grains were to be maintained, rates per hundredweight would vary considerably among grains.

Since merchandising agencies have been trading in bushels for many years, it is possible they would find it difficult to make the transition to hundredweight. Efficient merchandising operation depends to a great degree upon experience and knowledge developed over a long period in the grain trade, the grain handlers explained. Such experience and knowledge have long been based on the bushel as the unit of trading, and substitution of a new unit might reduce efficiency and create a handicap for this segment of the trade.

A second disadvantage mentioned would be the cost involved in preparing for the shift. The total cost, including the cost of recalculating records, introducing new procedures in the office, and retraining clerical help, would depend upon the size and volume of business of the individual or firm, but generally would be moderate.

The major advantage mentioned for merchandising agencies would be the establishment of a uniform basis for trading. This uniformity of trading would lessen the time required for training new clerical help, reduce the number of computations on invoices and settlement records, and possibly reduce the number of errors which arise through the many conversions necessary now.

## REACTIONS OF GRAIN PROCESSORS

Processors include distillers, flour millers, feed millers, and soybean and corn processors. Although most of the products of these industries are distributed in units of pounds, hundredweights, or tons, the raw products are often bought by the bushel. If the trading unit of grain were changed from bushel to hundredweight, these industries would be concerned. The one



problem in preparing for the shift would be the complete conversion of historical data used for comparison of past and current prices and volumes, according to the processors interviewed.

A second problem would be the required mental adjustment to the hundredweight basis after so many years of using the bushel unit for trading. The transition might result in some temporary confusion and errors.

One apparent disadvantage would be the cost of preparing for the shift. It was generally indicated that this cost would be small.

The major advantage would be simplification in buying the raw product. As all grains would be traded in one unit of weight, the shift would facilitate grasping the complexities of the grain trade and also speed the training of new people in the many procedures of buying grain and selling the finished products. Also, with the values of the various feed grains on a common weight basis, comparisons of values would be much easier. Today, for example, most people are not in a position to interpret quickly how 72 cents per bushel for oats compares with \$1.38 a bushel for corn. Direct comparison would be possible if both values were expressed on a hundred-weight basis.

According to those interviewed, they expected that the proposed shift would eliminate the need for conversions now made in daily buying and selling, and this elimination would lessen the possibility of errors. A substantial saving in time and money spent on clerical work therefore would be expected after the shift. Simplification would result in the work of the transportation department, where rates on railroads especially are constantly changing for different areas, and a constant need exists for changing tables used in calculating transportation costs.

#### HOW FUTURES MARKETS WOULD BE AFFECTED

The membership of futures markets includes grain traders and commission men and brokers who buy and sell futures contracts for their own account, or on order for a set fee or commission.

Many of the rules which affect the futures market or the method of trading would need to be changed. These changes in rules would have to be approved by the membership of the exchanges.

The wording of futures contracts, margin requirements, commissions, and units of trading, and the basis for determining the prices quoted on the market would have to be adjusted to take account of the change in the trading unit. Some changes would be quite easy to make; for example, it was suggested that the forms of confirmation slips used in futures trading could easily be changed.

Since futures contracts become active 11 months in advance of their maturity dates, some contracts expressed in bushel terms would be outstanding at the time of the proposed shift. Trading in the new contractual form, therefore, could be used only in trading contracts that would become active after the effective date of the shift. Of course, trading in the bushel contracts would have to continue until the expiration of these contracts.

The major problem mentioned by futures traders would be the length of time necessary for members of futures markets to become adjusted to the new unit of trading. Traders on futures markets have developed mental concepts of probable price relationships among different markets, different contracts, or different grains that are based on the bushel. These expected relationships become a part of the mental process whereby traders are able to make decisions on futures contracts quickly and effectively. Substitution of hundredweight for bushels all along the line, traders pointed out, would require all of these groups to reorient their thinking to the new unit.

A disadvantage which would result is the cost in time and money for revisions of all historical series of data, forms, instructions, and publications; the retraining of all personnel in the new method of clerical work; and the physical changes necessary, such as redesigning the board on which prices are quoted.

#### COMMENTS OF BANKERS AND INSURANCE BROKERS

The banking institutions and insurance firms contacted anticipated no problems. The contracts used by banks in making loans on grain can be filled in with any commodity at any given unit of weight or measurement. At present, all contracts are based on the actual value of the grain. If the shift were instituted, this change would not affect the loans on grain then in force.

Insurance, except for crop insurance, which is discussed in the section on Government agencies, is written on the total value of the grain. This value is based on the bushel measurement, but insurance men felt it would be a small matter to change the terminology of the insurance contracts to read hundredweight instead of bushel. The word "bushel" is found at only two places in the insurance contract now generally used. No change would be anticipated in the insurance contracts in force at the time the shift went into effect. A 6-month advance notice would be preferred by the insurers; with this advance notice, all the insurance forms now including the word "bushel" might be used up, which would minimize additional costs resulting from the shift.

## VIEWS OF MACHINERY MANUFACTURERS

From discussions with representatives of machinery and scale manufacturers, it appears that there would be no significant changes or problems arising from the proposed shift in the trading unit for grain.

No change would be necessary in the designing of farm machinery or elevator equipment, and only a few changes would be needed in terminology in the manual of instructions for some types of machinery. A year's notice would be necessary to revise manuals of instructions, manufacturers explained, because the delivery timetable of machinery is for 6 months in advance of anticipated use. It was expected that bushel and hundredweight information would be carried on all information pertaining to farm machinery for several years, until the affected people became accustomed to the term hundredweight.

## EFFECTS ON WORK OF GOVERNMENT AGENCIES

State Departments of Agriculture.--In several western States and in the Territories replying to the questionnaire, no changes or problems of any type were expected, since trading in those areas already is conducted on a hundredweight basis. In many other States where grain is not grown or traded extensively, only minor, or no, changes would be required. In some other States, rather extensive changes would be required in legislation, regulations, and administrative procedures. In general, it was reported that the changes would result in a simplification of the work of the State departments of agriculture or other regulatory agencies.

Federal Government Agencies.--Several agencies of the Federal Government would be affected through changes in legislation or regulations stemming from legislation, through conversions of historical records, and through changes in office procedure and forms. The seriousness of the changes would vary among the agencies.

A problem confronting the Grain Division, Commodity Stabilization Service, would be changes in legislation or regulations necessary to control and facilitate their programs and operations. References to the bushel appear in legislation relating to the establishment of commercial corn areas, determination of acreage allotments and marketing quotas, and price supports. Changes in such legislation probably would be advisable.

The Commodity Exchange Authority, USDA, would need to revise the regulations pertaining to reports required from brokers, exchange members, and large traders. Orders of the Commodity Exchange Commission (composed of three members of the President's cabinet) on speculative limits covering trading and positions in grain futures markets would need revision. Historical data maintained by the Commodity Exchange Authority on futures trading statistics for at least 10 years would need to be converted to the hundredweight.



It might not be absolutely necessary for those agencies to have legislative changes to insure proper operation of their programs. However, quite some time might elapse before proper legislation could be passed, if needed.

It would be necessary for all agencies to convert permanent historical records from the bushel unit to the new unit of trading. The Grain Division, CSS, which administers the price-support and production-adjustment programs, would need to convert immediately all historical data for a 10-year base period for corn, wheat, and rice. The Agricultural Estimates Division of Agricultural Marketing Service, which gathers basic information from farmers, would have to convert all historical data on yields per acre, production, and prices for all grains immediately for a 10-year base period. Records prior to the 10-year period would need to be converted eventually by all agencies but that could be done at the convenience of the individual office. These series of data include:

Stocks	Foreign trade
Supplies	Open contracts
Production	Daily volume of trading
Yield per acre	Production-adjustment programs
Domestic utilization	Daily records showing volume and commitments of large traders

Most price series for grains also would need to be converted, except for grain sorghums and rice which already are reported by the hundredweight.

All regulations, instructions, and forms for the programs of the Grain Division, CSS, pertaining to price supports, acreage allotments, marketing quotas, storage, procurement, sales, and the Soil Bank would have to be rewritten to substitute hundredweight for bushel. It would also be necessary to change the terminology of all forms, instructions, and notices used in gathering, compiling, and disseminating information by all Washington and field offices of all agencies affected by the shift in the trading unit. However, this change might be kept to a minimum if the notice of the expected shift were issued in time to permit using up old forms.

The only major problem confronting the Federal Crop Insurance Corporation would be the change in the pattern of thought, especially at the local level, as all insuring and adjusting is done in the bushel unit.

Minor problems and changes which would occur include revision of historical series of data in all the field offices, changing the terminology in a few places in the regulations governing insurance of some grains, and reworking the actuarial tables.

Work of the Warehouse Act Branch, Special Services Division, Agricultural Marketing Service, requires maintenance of records on the capacity of grain elevators. For this one purpose it is necessary to measure space or volume, rather than weight. To illustrate, the space which will

hold 100,000 bushels of grain translates into 3,000 tons of wheat but only 1,600 tons of oats. The bushel now serves as a common denominator of elevator space; the use of any other measure of capacity such as cubic feet would necessitate considerable clerical work to revise existing data, but no major problem would be expected.

The existing scale of inspection fees would have to be converted to a hundredweight equivalent or a new schedule of fees would have to be developed by the Grain Division, AMS, applicable to the hundredweight unit. Probably only minor changes would be necessary in the grading and testing of grains by AMS under the Grain Standards Act. No change in the law would be required. Minor changes in the regulation to effect a shift in fees to the hundredweight unit might be desirable. No change in methods or equipment for grading grain would be required.

The Bureau of Customs would require no extensive changes in office procedure, forms and instructions, or historical records, it was reported. No changes in legislation, Presidential proclamations, or international agreements would be necessary. Problems associated with the change would be minor. No appreciable advantage or disadvantage would result from the shift as far as work of the Bureau of Customs is concerned.

A problem for a time would be confusion caused by the shift to the hundredweight unit. This would be most apparent in the field offices of the Bureau of the Census, Commodity Exchange Authority, Federal Crop Insurance Corporation, Grain Division of CSS, Grain Division of AMS, and Agricultural Estimates Division of AMS. Reluctance in accepting the new unit might be met, and it might require some time and an educational program to acquaint farmers and other segments of the grain trade with all the changes necessitated by the shift to the hundredweight. However, after the public became acquainted with the new unit of trading, considerable time could be saved in all calculations because of the uniform unit for all grains.

All of the agencies involved in gathering, compiling, handling, and reporting grain data in the Federal, State, and county offices would be affected by the change in the trading unit.

However, no major difficulties are anticipated in making changes required by the shift, and additional costs relative to annual operating budgets would be moderate. Most governmental units, as well as most trade and farm organizations, indicated the change would be a distinct advantage because of the uniformity in the trading unit. The resulting disadvantages would be clerical because of the need for revising and converting historic data. Such disadvantages would be short-run.





